# United States Patent [19]

**Granger**

[11] **3,709,147**

[45] **Jan. 9, 1973**


[54] **INK TRANSFER CYLINDER MOUNTING WITH ADJUSTABLE DRIVE CLUTCH**


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[22] Filed: Dec. 3, 1970

[21] Appl. No.: 94,781

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. Nos. 735,388, June 7, 1968, Pat. No. 3,585,932, and Ser. No. 650,453, June 30, 1967, abandoned, and continuation-in-part of Ser. No. 38,163, May 18, 1970, Pat. No. 3,587,463

[52] U.S. Cl. ..... 101/351

[51] Int. Cl. ..... B41f 31/06

[58] Field of Search ..... 101/349-352, 148, 101/216, 219, 247



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,341,692 | 6/1920 | White | 101/349 |
| 2,085,185 | 6/1937 | Crafts | 101/350 X |
| 2,183,739 | 12/1939 | Crafts | 101/350 |
| 2,294,503 | 9/1942 | Klingelfuss | 101/350 |
| 3,585,932 | 6/1971 | Granger | 101/350 |
| 3,587,460 | 6/1971 | Chambon | 101/350 |



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[57] **ABSTRACT**

In a rotary newspaper printing press having only a single ink transfer cylinder or form roller, such cylinder is gear driven through a clutch disposed outside of the press frame in an oil bath and external adjustment means controls clutch pressure. The ink transfer cylinder is mounted for controlled translation in a single plane normal to a common plane of the axes of the inking cylinder and plate cylinder and the clutch mechanism accommodates such movement while maintaining gear drive connection of the ink transfer cylinder.


**8 Claims, 5 Drawing Figures**

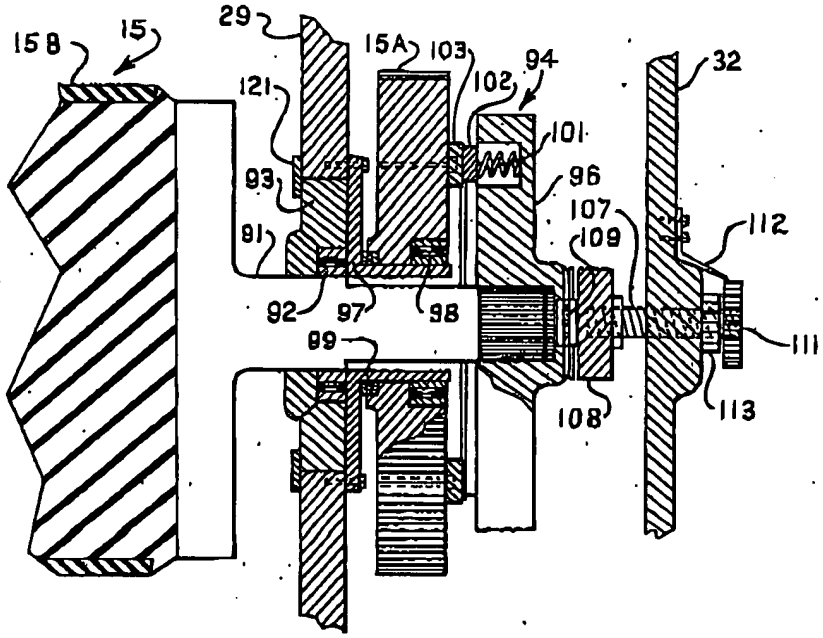

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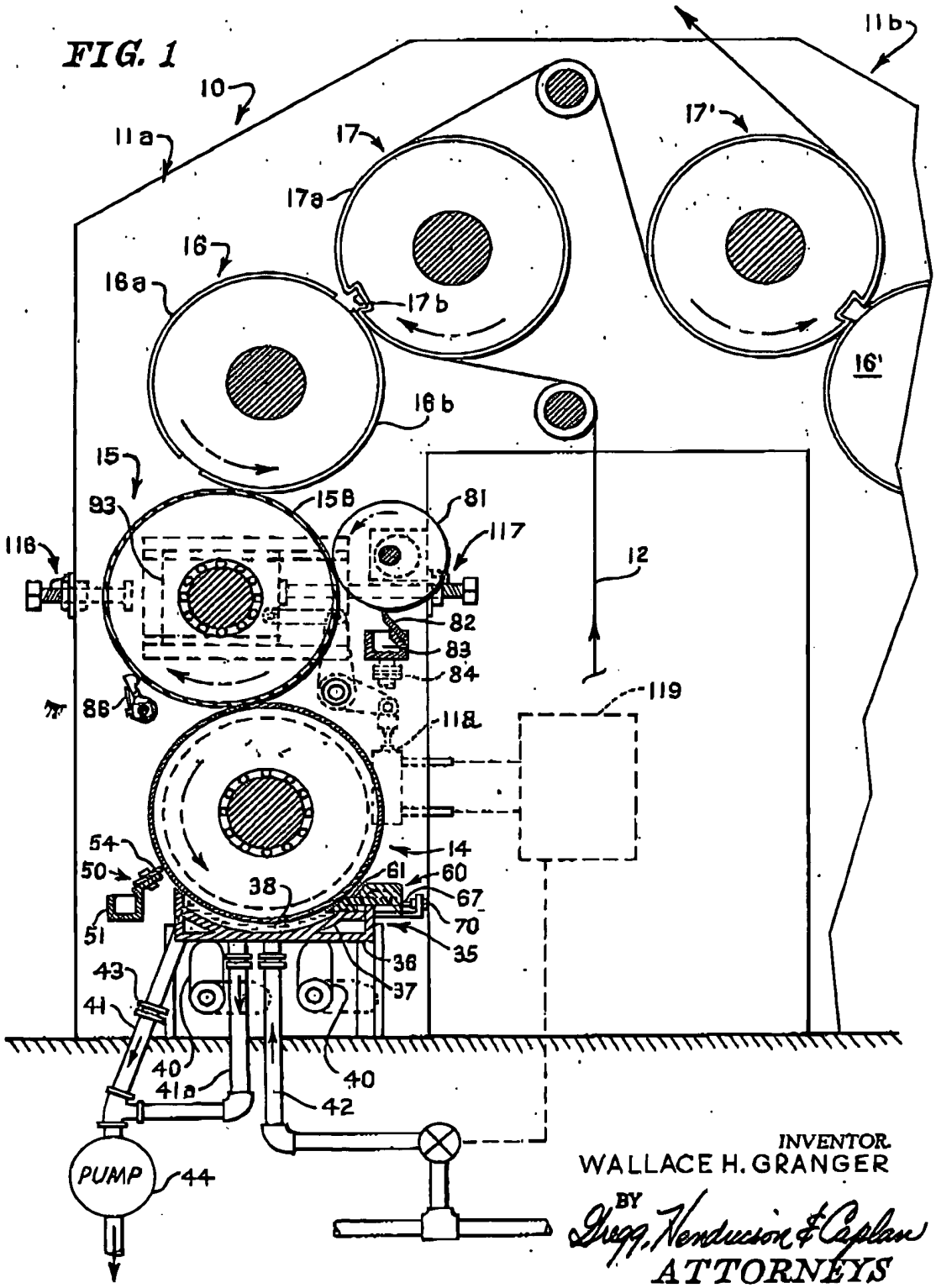
FIG. 1

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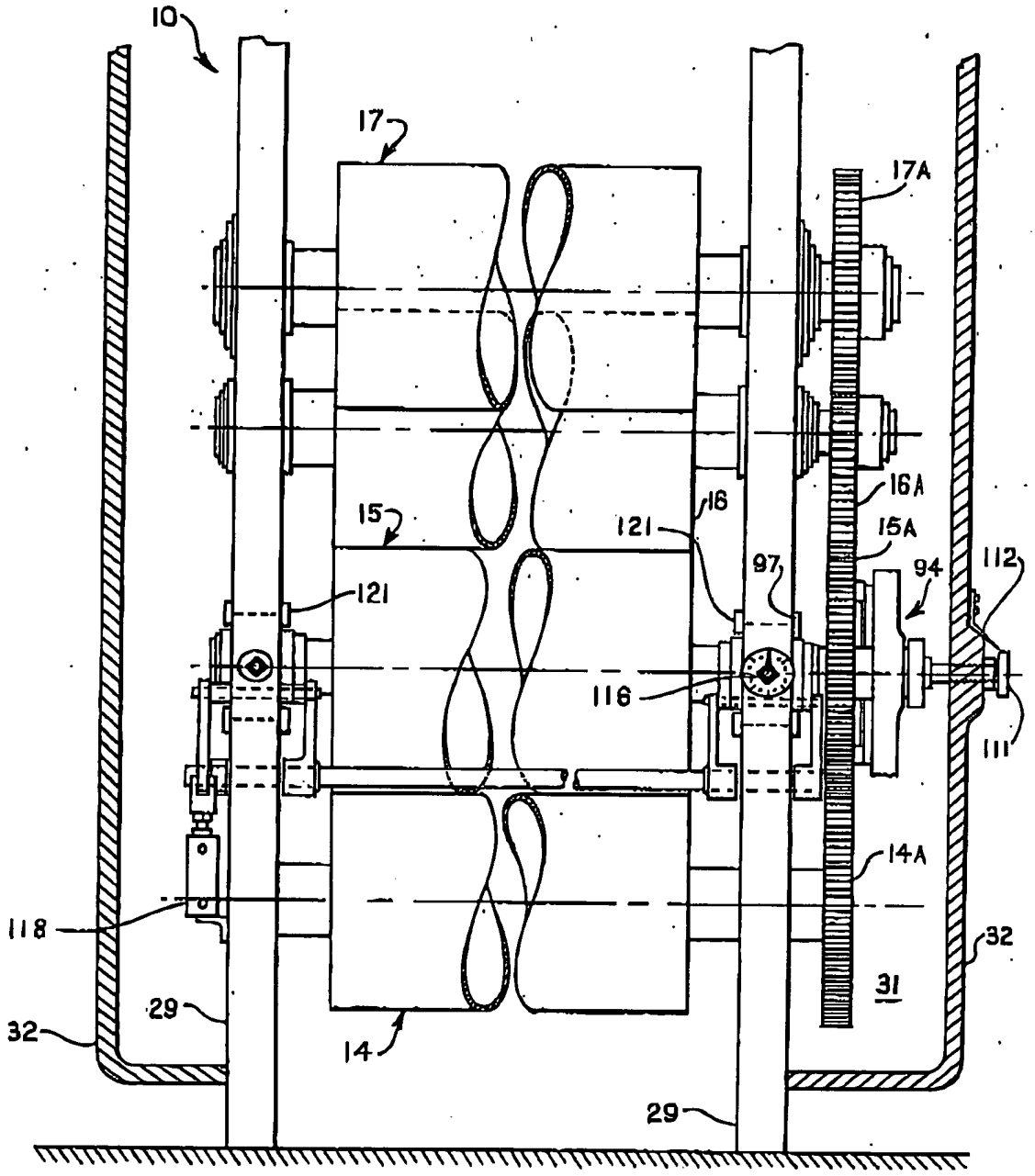


FIG. 2

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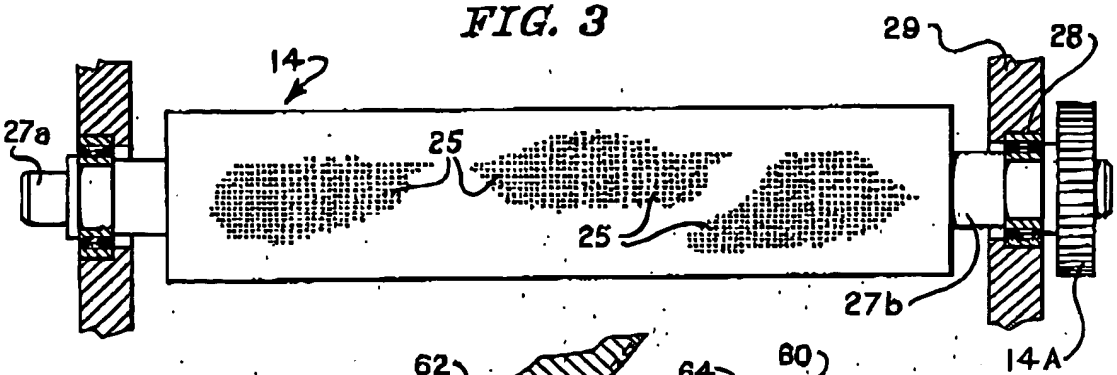
FIG. 3



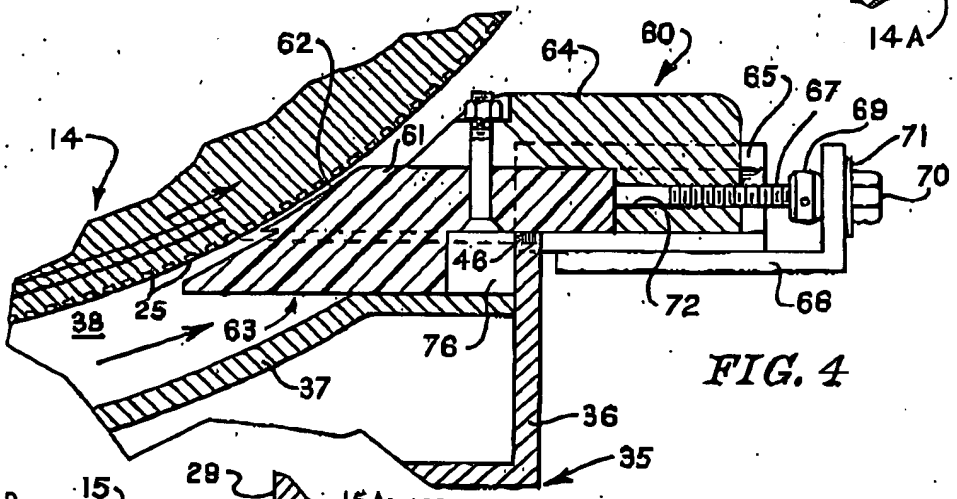




FIG. 4

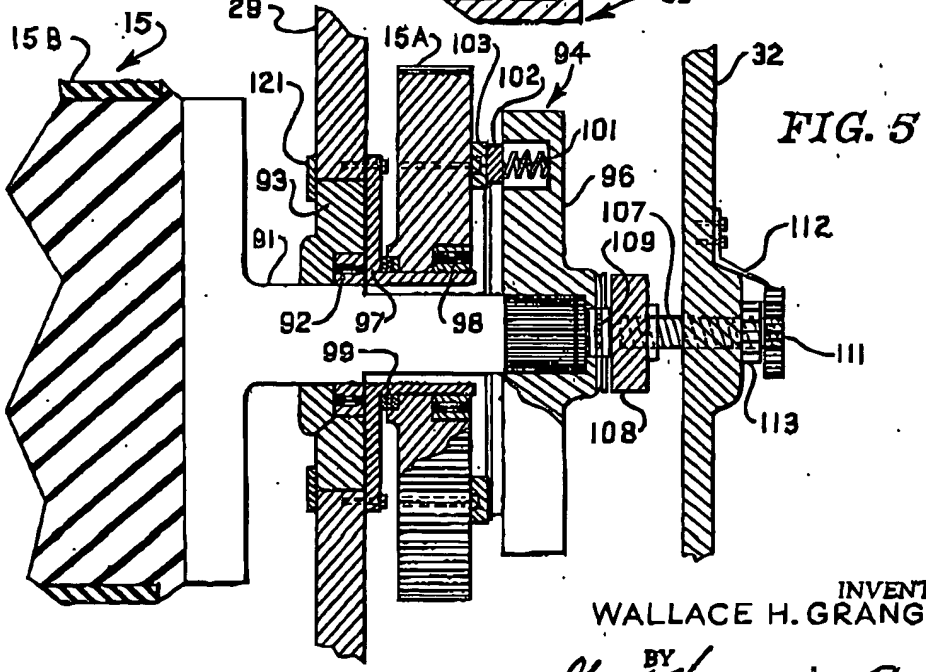



FIG. 5

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# INK TRANSFER CYLINDER MOUNTING WITH ADJUSTABLE DRIVE CLUTCH

This is a continuation-in-part application of copending U.S. patent application Ser. No. 735,388 filed June 7, 1968, now U.S. Pat. No. 3,585,932 and U.S. patent application Ser. No. 650,453 filed June 30, 1967, now abandoned, and refiled as Ser. No. 38,163 on May 18, 1970, now U.S. Pat. No. 3,587,463.

## BACKGROUND OF INVENTION

Conventional inking systems for rotary newspaper printing presses incorporate a plurality of drums and rollers with at least certain of these being vibrated or oscillated axially thereof for the purpose of evenly spreading ink upon a plate cylinder of the press. There are normally employed two form rollers engaging the plate cylinder and transferring a film of ink thereto for printing. Such form rollers are conventionally covered with a resilient material such as rubber or the like.

There has been developed a new circulating inking system for rotary newspaper printing presses and same is disclosed in the above-noted copending patent applications. Such system employs but a single ink transfer cylinder or form roller which is gear driven to rotate in rolling contact with an inking cylinder in an ink fountain and a plate cylinder. No vibrating or oscillating drums or rollers are included in such system; however, it is noted that the ink transfer cylinder or form roller of this new system is provided with a resilient cover which has been found to swell during usage thereof. My above-noted copending patent applications set forth means for translation of the single ink transfer cylinder to move the cylinder in a single direction away from the inking cylinder and plate cylinder whereby the ink transfer cylinder or form roller may be ground to return same to original diameter. Provision is also made for maintaining the ink transfer cylinder in proper rolling contact with the inking cylinder and plate cylinder even though the working diameter of the ink transfer cylinder slowly increases with use.

There have been suggested various types of clutch mechanisms for driving of the form roller or ink transfer cylinder and in the prior art the gear and clutch mechanism, when employed, have been mounted inside of the main side frame of the press. It is noted that conventionally an ink transfer cylinder or form roller is mounted in a socket providing for adjustment in four directions. Serious disadvantage is found in location of the clutch mechanism inside of the framework of the press in that it is almost impossible or at least dangerous for an operator to attempt to adjust the clutch while the press is in motion and oftentimes fibrous materials are incorporated in the clutch mechanism so that clutch renewal is required at frequent intervals, thus necessitating removal of the form roller from the press.

The present invention provides an improvement in inking systems, particularly adapted to rotary newspaper printing presses, in the mounting of a single ink transfer cylinder or form roller in position for rolling contact with the inking cylinder and the plate cylinder together with means for adjustably or controllably driving the ink transfer cylinder so that such rolling contact is maintained despite swelling of the resilient covering on the ink transfer cylinder. There is furthermore provided herein an improved clutch



mechanism and clutch control for the ink transfer cylinder of the system. The present invention thus comprises an improve-ment upon the new inking system described in my above-noted patent applications.

## SUMMARY OF INVENTION

The present invention is an improvement upon a new inking system for rotary newspaper printing presses as disclosed in my U.S. patent application Ser. No. 735,388, particularly in relation to the mounting of the ink transfer cylinder of such system and an improved adjustable clutch mechanism for such cylinder.

The present invention provides a gear drive for the ink transfer cylinder or form roller together with an adjustable clutch mechanism for such drive. Both the gear drive and clutch mechanism are physically located outside of the main press frame and within a housing over the frame containing an oil bath within which the gears and clutch operate. The shaft of the ink transfer cylinder is translatable in a single plane normal to a plane through the axes of an inking cylinder and plate cylinder as by means set forth in my above-noted application or means set forth in my U.S. patent application Serial No. 784,599. The present invention, however, provides a clutch disc upon the ink transfer cylinder shaft engaging the gear for driving such cylinder with provision for movement of the cylinder shaft while maintaining clutch engagement. Thus the cylinder may be moved, as by means disclosed in my above-noted copending patent applications, out of contact with other cylinders of the press and yet remain in driven relationship to the gear train through the above-noted clutch mechanism.

The present invention furthermore provides for disposition of the aforementioned clutch mechanism outside of the main press frame and within the housing thereabout so that the clutch operates within an oil bath contained in such housing. Adjustment of the clutch is provided for by means extending outwardly through the housing about the press frame whereat calibrated adjustment means provide for ready setting of clutch tension.

## DESCRIPTION OF FIGURES

The present invention is illustrated as to a preferred embodiment thereof in the accompanying drawings wherein:

FIG. 1 is a side elevational view partly in section illustrating a newspaper printing press embodying the present invention;

FIG. 2 is an end elevational view of the press of FIG. 1;

FIG. 3 is a plan view of the inking cylinder of the press with portions of the frame broken away to illustrate cylinder mounting;

FIG. 4 is an enlarged sectional view of a portion of the ink fountain of the press; and

FIG. 5 is an enlarged central sectional view through the ink transfer cylinder drive mechanism of the present invention.

## DESCRIPTION OF PREFERRED EMBODIMENT

Referring now to the drawings, there will be seen to be illustrated in FIGS. 1 and 2 a printing press incor-

porating the new circulating inking system set forth in my abovernoted copending patent applications. In order to fully disclose the present invention, it is advantageous to first consider the overall system including the ink transfer cylinder or form roller mounted in accordance with the present invention.

Referring now to the drawings, the numeral 10 designates generally a complete printing unit including a first printing couple 11a (shown in its entirety) and a portion of a second printing couple 11b which is identical to the first couple. A web 12 of paper (e.g., newsprint) passes through the couple 11a to be printed on one side and then through couple 11*b* to be printed on the other side.

The elements of couple 11a include an inking cylinder 14, an ink transfer cylinder 15, a plate or printing cylinder 16, and an impression cylinder 17 shown with a blanket 17*a* and a blanket slot 17*b*. Each of these cylinders is suitably supported for rotation on axles or trunnions. Printing cylinder 16 is shown with two plates 16*a* and 16*b* for printing separate pages, but a single plate may be used, as, for example, a tubular plate. For printing of newspapers it is preferred that plates 16*a* and 16*b* be incompressible plates, e.g., the low melting lead-tin-antimony alloy commonly used in rotary newspaper presses, also suitably incompressible plastics such as Dycril (a trademark of E.I. duPont Company), or Offset Printing Plates.

The inking cylinder 14 has ink receiving cells 25 formed in its surface, as generally indicated in FIG. 3. The surface of this cylinder is of a hard, durable metal such as nickel-chromium alloy or a suitably hard steel. The cells are produced by etching and, as stated in my copending application, they are formed like the cells in a rotogravure cylinder. Typically there may be 100 to 200 cells per linear inch, or 10,000 to 40,000 per square inch, as in a rotogravure cylinder produced with a 100 to 200 line screen. In a rotogravure cylinder the dimensions of the cells will vary to produce tone effects, but in my cylinder the cells are preferably uniform in depth and diameter. As in the case of ink cells in a rotogravure cylinder, the ink cells 25 of my cylinder 14 may be cup or V-shaped, being wider at the top than at the bottom, tone effects being produced by the printing plates on the printing cylinder.

The inking cylinder 14 is rotatably mounted by trunnions 27*a* and 27*b* extending from opposite ends thereof and carried by bearings 28 mounted in the press frame 29, as shown in FIG. 3. The trunnion 27*b* extends through the frame 29 and has a gear 14A secured thereto within an oil bath in a chamber 31 disposed between the frame and an exterior housing 32. The gear 14A has the same pitch diameter as the inking cylinder 14 and forms a part of a gear train including gears 15A, 16A, and 17A rotating cylinders 15, 16 and 17. Each of the gears 15A, 16A and 17A have the same pitch diameter as the cylinder which they rotate and a drive gear (not shown) engages the gear train to rotate the gears thereof.

Referring now to FIG. 1, an ink fountain assembly 35 is there shown including a pan or tray 36 having a dished portion 37 spaced from the bottom of cylinder 14 and forming a space 38 to receive ink. The fountain assembly includes an elevator including pivoted, parallel links 40 whereby the assembly can be lifted into



operative relation to cylinder 14 as shown in FIG. 1 or lowered for inspection, removal, cleaning, repair, etc. Inlet and outlet pipes 41, 41*a* and 42 are provided, with each including a quick disconnect coupling member 43 to connect that part of the piping which is a permanent part of the assembly 35 with that part of the piping from the ink supply and ink sump. Pipe 42 is the inlet pipe and pipes 41 and pipe 41*a* are the outlet pipes and are connected through a pump 44 to a master ink reservoir. Pipe 41 is in use when the press is in operation. Pipe 41*a* is used for draining all the ink from the fountain.

A baffle blade assembly 50 is provided to remove foreign matter, such as scraps of newsprint, from the inking system. Such baffle blade assembly comprises a small removable sump 51 suitably mounted. Extending upwardly from the sump is baffle blade 54 that extends very close to the cylinder 14, for example, about 0.002 inch from the surface of the cylinder. Foreign matter carried by the cylinder toward the ink fountain will be removed by the blade 54 to fall into the sump and thus prevent contamination of ink in the fountain.

Referring now to FIGS. 1 and 4, the fountain assembly also includes an ink control subassembly which is designated generally by the numeral 60. This ink control subassembly comprises an ink control blade 61, which may be made of any suitable material, e.g., Nylon. This blade has an inner surface 62 that has the same or very nearly the same radius as the cylinder 14. Attached to or preferably formed integrally with the blade 61 are a number of guide vanes or fins 63 whose function is described below. The inner ends of the fins 63 are set further back from the cylinder 14 than the control blade 61 as best shown in FIG. 4. The blade 61 is adjustably mounted as follows: the blade 61 is carried by a relatively massive metal casting 64 which extends the length of the cylinder 14. At each end this casting has an end portion (not shown) which is slidably mounted in a channel 65 which is fixed (e.g., bolted or welded) to the framework of the machine. To each such channel is affixed a bracket 66 which carries a screw 67. The screw 67 is rotatable in the bracket but is held against axial movement by its head 70 and a ring 69. A micrometer scale 71 is also provided. The screw 67 is threaded into a tapped hole 72 in the casting. By turning the screw 67 at both ends of the casting 64 the position of surface 62 of blade 61 in relation to the cylinder 14 can be accurately adjusted and the spacing can be read off the micrometer scale 71.

The vanes 63 are directed outwardly of the fountain at a large angle to the axis of cylinder 14 and toward one end of the fountain to thus define slanted flow passages leading to an outer flow passage 76 extending longitudinally of the cylinder. As the inking cylinder 14 rotates it moves the viscous ink toward the blade and fins to thus provide a pumping action that forces ink through the passages so that ink moves through the fountain between inlet and outlet ends of the fountain.

Additional components of the ink transfer assembly comprise a metal, e.g., steel cylinder 81 to remove excess ink from ink transfer cylinder 15 after it has made contact with printing cylinder 16, and a scraper blade 82 to remove ink from cylinder 81 into a sump 83 whence it flows by pipe 84 to the main ink reservoir. A squeegee bar 86 may be mounted in light contact with

pad 15B, as shown, to eliminate the possibility of a screen effect being transferred to the printing plate.

Printing cylinder 16 has one or two printing plates 16a and 16b affixed thereto, and to which ink is transferred by pad 15B of cylinder 15. This transfer of ink is efficient and uniform. The desired printing is accomplished on one side of a web 12 as it passes between printing cylinder 16 and impression cylinder 17, such being in the usual manner. As stated, the other side of the web is printed in couple 11b by passing between the impression cylinder 17' and printing cylinder 16' of that couple.

The ink transfer cylinder 15 is formed with a resilient cover 15B, as illustrated in FIG. 5. Typically, this cover or pad 15B has a medium durometer hardness such as presently used in covering rollers in printing presses, and it is noted that a durometer hardness of the order of 30 to 60 is suitable. This resilient pad 15B tends to swell in use, and because the cylinder is rotated at a constant rotary speed the increased diameter of the cylinder due to swelling causes the peripheral linear speed to increase. The present invention provides compensation for this increasing diameter of the cylinder 15 in order to maintain the peripheral linear speed of the cylinder constant.

The cylinder 15 is rotatably mounted by means of trunnions or end shafts 91 extending axially from the cylinder and carried in bearings 92 mounted in bearing blocks 93 in the press side frame 29. The bearings 92 are provided as antifriction bearings having no play therein and which may be adjusted to zero clearance. The ink transfer cylinder is to be mounted for rotation only without any lateral motion or axial and the bearings may, for example, be reloaded tapered roller bearings as illustrated. Referring further to FIG. 5, there is illustrated a clutch mechanism 94 including a clutch disc 96 splined or keyed to the outer end of the cylinder shaft 91 so as to rotate with the shaft but to be slidably mounted axially thereon. The drive gear 15A for cylinder 15 is mounted upon a flanged drum 97, having the flange thereof bolted to the side frame 29 of the press and is carried by bearings 98 on the drum. A thrust bearing 99 is disposed between the gear and drum flange to take up axial thrust of the gear. The cylinder trunnion 91 extends through the drum 97 but has a smaller diameter than the interior opening through the drum, for the reason set forth below.

At spaced intervals about the clutch disc 96 there are provided sockets within which there are disposed compression springs 101, and a friction ring 102 is disposed over the sockets to be urged away from the clutch disc by the springs 101. A friction ring 103 bolted to the outer face of the gear 15A is aligned with the friction ring 102 on the inner face of the clutch disc. Thus it will be seen that the gear 15A, which is freely rotatable upon the drum 97, will drive the cylinder shaft 91 through the clutch mechanism, in accordance with the amount of friction provided between the friction plates 102 and 103 by the springs 101. As the cylinder pad 15B swells and the cylinder 15 tends to rotate at a peripheral linear speed exceeding that of the adjacent cylinders 14 and 16, a drag develops which is transmitted to the clutch mechanism described above. This will cause slippage of the clutch and will slow down the cylinder 15 until its peripheral linear speed is equal to that of the adjacent cylinders 14 and 16.



There are furthermore provided by the present invention means for adjusting the clutch pressure from the exterior of the press. The above-described gear 15A and clutch mechanism 94 are disposed in the chamber 31 defined between the press frame 29 and exterior housing 32. This chamber 31 contains oil so that the gear and clutch mechanism rotate in an oil bath. In accordance with the present invention there is provided an adjusting bolt 107 threaded through the housing 32 from the outside thereof and extending axially of the cylinder shaft 91 into engagement with a metal pad 108. The engagement of bolt and pad may be accomplished by threading the bolt into the pad and providing a lock nut about the bolt so as to fix the engagement of bolt and pad. The clutch disc 96 is provided with a central boss forming a cap over the end of the cylinder shaft 91 with some clearance between the boss and shaft end, and an anti-friction thrust bearing 109 is seated in the outer side of the disc boss in extension from the surface thereof for engagement with the pad 108 on the adjusting bolt 107. Exteriorly of the oil-tight housing 32, the adjusting bolt 107 may be provided with an enlarged head 111, by means of which the bolt may be turned to adjust the position of the pad 108 axially of the shaft 91. This head 111 may have micrometer calibrations thereabout, and a pointer 112 secured to the exterior of the housing 32 extends into proximity with the bolt head 111 so that the rotated position of the bolt and thus the position of the pad on the inner end thereof may be measured in terms of the calibrations. A lock nut 113 on the bolt beneath the head thereof adjacent the housing 32 serves to lock the adjusting bolt in adjusted position.

It will be seen that by loosening the lock nut 113 and turning the adjusting bolt 107 by the head 111 thereof, it is possible to adjust the axial position of the clutch disc 96 on the shaft 91. As noted above, the clutch disc is splined to the end of the shaft and consequently can be slid axially of the shaft. In this manner the pressure provided by the clutch mechanism is adjustable from the exterior of the press housing.

Although the clutch mechanism 94 of the present invention provides for accommodating a certain amount of swelling of the pad 15B of the ink transfer cylinder, it is necessary occasionally to grind the pad 15B down to original diameter when the swelling thereof becomes excessive. In speaking of cylinder diameters in the present description, it is to be noted that the diameter of cylinder 15 is taken as the working diameter, i.e., the diameter of the cylinder and pad, with the pad compressed the desired amount against the inking cylinder 14 and plate cylinder 16. In order to carry out grinding of the pad 15B on the cylinder 15, without removal of said cylinder 15 from the press, the present invention provides a slidable mounting for the cylinder, as illustrated in FIGS. 1 and 5. At each end of the cylinder the trunnions or axial shafts thereof are carried by bearings in bearing blocks 93, as described above. These bearing blocks 93 are slidably mounted in the side frame 29 of the press, so as to be movable perpendicularly to the axis of the cylinder 15 and perpendicular to a plane through the axes of cylinders 14 and 16. The cylinder 15 is movable in a single plane through a plane angle so that it is not necessary to separately adjust the contact of the cylinder 15 with the cylinders 14 and 16. Although the cylinder 15 is shown to be mounted for

horizontal movement, it is to be appreciated that this movement need only be substantially horizontal.

Further with regard to movement of the cylinder 15 for regrinding of the pad 15B thereon, it is noted that the bearing blocks 93 are constrained to remain in alignment with the press frame 29 by guides 121, which may include on the outside of the frame the flange 97 of the drum 98. The blocks 93 are thus free to move only in the direction described above. Provision is made for accomplishing this movement of the ink transfer cylinder 15 and such may, for example, comprise the structure described in my above-noted copending application Ser. No. 735,388 or structures such as shown in my copending patent application Ser. No. 784,599. At any rate, there is provided micrometer adjustment means for setting the positions of the ink transfer cylinder, and referring to FIG. 1 of the drawings, such will be seen to comprise first and second micrometer screws 116 and 117.

The micrometer screws 116 and 117 are mounted through the press frame on opposite lateral sides of the cylinder 15 and extend into position for alternative engagement with the bearing blocks 93, or extensions thereof. Calibrations are provided together with indicating means such that the micrometer screws may be adjusted to desired positions for fixing the cylinder position in either engaging relationship with the cylinders 14 and 16 or out of engaging relationship therewith for grinding of the pad about the ink transfer cylinder 15. There is shown in FIG. 1 a hydraulic cylinder 118 together with linkage for movement of the ink transfer cylinder between the fixed positions as set by the micrometer screws, and a control unit 119 may be provided for operating the hydraulic cylinder. It is also that, in accordance with the teachings of my last mentioned copending patent application, provision may be made for automatically moving the ink transfer cylinder 15 out of contact with the inking cylinder and plate cylinder upon web breakage as by means of the hydraulic cylinder 118. Further with regard to translation of the ink transfer cylinder, it is again noted that the movement thereof to disengage same from the inking cylinder and plate cylinder need only be a very short distance. With the trunnions or shafts of the cylinder 15 having a smaller diameter than the inner diameter of the drum 97 mounting the drive gear 15A, it is thus possible for the cylinder to be moved without disturbing the gear. The clutch mechanism 94 remains in engagement even though the clutch disc moves with the cylinder, and thus the cylinder is retained in driven relationship to the gear when it is shifted out of engagement with the cylinders 14 and 16. This then provides for rotation of the ink transfer cylinder when it is moved to grinding position and consequently it is only necessary for a portable grinder to be removably mounted upon the press frame in position to engage the pad 15B about the ink transfer cylinder in order to grind the cylinder to desired diameter. This then is highly advantageous in providing for driven rotation of the ink transfer cylinder in all positions thereof and precludes difficulties with partially meshing gears, as would occur if the gear 15A moved with the cylinder 15. It is noted further that the clutch adjustment means readily accommodates this small translation of the cylinder 15 so as to remain in operative condition at all



times. The friction rings 102 and 103 in the clutch mechanism are of sufficient radial width to accommodate the small movement of the clutch disc with respect to the gear when the cylinder 15 is translated to grinding position.

The present invention provides an improvement in the mounting of an ink transfer cylinder or form roller in a rotary newspaper printing press to accommodate swelling of the resilient pad on the cylinder and yet maintain the gear driven cylinders of the press in proper rolling contact, with all cylinder gears maintaining true pitchline contact with mating gears. Provision is also made for translating the ink transfer cylinder out of contact with other press cylinders for grinding the cylinder pad and yet maintaining the ink transfer cylinder in gear driven position. Although the invention has been described above in connection with a single preferred embodiment thereof, it will be appreciated that various modifications are possible within the spirit and scope of the invention.

What is claimed is:

1. In a printing press having an ink transfer cylinder rotatably engaging an inking cylinder and a plate cylinder and the ink transfer cylinder having a gear meshing with a gear on each of the other cylinders, the improvement comprising means mounting said ink transfer cylinder gear for rotation upon a side frame of said press, means for translating said ink transfer cylinder relative to said ink transfer cylinder gear for moving said ink transfer cylinder out of contact with said other cylinders, a clutch mechanism connecting the ink transfer cylinder to the ink transfer cylinder gear whereby said ink transfer cylinder is rotated by said ink transfer cylinder gear in rolling contact with the other cylinders, said clutch mechanism including means for accommodating limited translation of said ink transfer cylinder while maintaining connection between said ink transfer cylinder and ink transfer cylinder gear for movement of the ink transfer cylinder out of contact with the other cylinders while retaining engagement of said gears, and a clutch pressure adjusting means extending from said clutch exteriorly of said press for controllably setting clutch pressure.

2. The system of claim 1 further defined by said press having a frame, said cylinders having axles extending therefrom through said frame, said means mounting said ink transfer cylinder gear comprising a flanged open-ended drum mounted on said press frame about said ink transfer cylinder axle and carrying said ink transfer cylinder gear in rotatable relation thereon, a housing about said frame and defining a chamber, adapted to contain oil, and said gears and clutch mechanism being disposed in said chamber to operate in an oil bath.

3. The system of claim 2 further defined by said clutch mechanism comprising a spring loaded clutch plate mounted on the shaft of said ink transfer cylinder for rotation therewith, said clutch plate being slidably mounted on said shaft for movement axially of the shaft and engaging the ink transfer cylinder gear for transmitting rotary gear motion to the cylinder shaft and said clutch pressure adjusting means comprising means threaded through said housing and engaging said clutch plate for setting the pressure of said spring loading.

4. In a printing press having an ink transfer cylinder rotatably engaging an inking cylinder and a plate cylinder and the ink transfer cylinder having a gear meshing with a gear on each of the other cylinders, the improvement comprising a hollow drum mounting said ink transfer cylinder gear for rotation thereon and having an end shaft of the ink transfer cylinder extending therethrough and out of contact therewith, a clutch mechanism including a clutch disc mounted upon the ink transfer cylinder shaft and resiliently engaging the ink transfer cylinder whereby said ink transfer cylinder is rotated by said ink transfer cylinder gear in rolling contact with the other cylinders, clutch pressure adjusting means extending from said clutch exteriorly of said press for controllably setting clutch pressure, and means limitedly translating said ink transfer cylinder normal to the axis thereof for moving said cylinder out of contact with the inking cylinder and plate cylinder while maintaining ink transfer cylinder clutch engagement with the ink transfer cylinder gear.

5. An improved mounting system for the ink transfer cylinder of a printing press having such cylinder in rolling contact with an inking cylinder and a plate cylinder for transfer of ink to the plate cylinder, comprising a first gear, a hollow drum fixedly mounted upon a press frame and carrying said first gear in rotatable relation thereon, said first gear meshing with gears upon said inking cylinder and plate cylinder, said ink transfer cylinder having axial trunnions extending through bearing blocks mounted upon said press frame, a first of said trunnions having a smaller diameter than the internal opening through said drum and extending therethrough, a clutch mechanism mounted on said first trunnion and extending into resilient engagement with said first gear for transmitting rotary motion from the gear to the ink transfer cylinder, and means controllably translating said ink transfer cylinder out of contact with said inking cylinder and plate cylinder to move said first trunnion in said drum without contacting the drum yet retaining said clutch mechanism in engagement with said first gear for continued rotation of said ink transfer cylinder.

6. The mounting system of claim 5 further defined by a housing about said press frame defining an oil bath chamber within which said gears and clutch mechanism are disposed.

7. The mounting system of claim 6 further defined by said clutch mechanism including a clutch disc splined to said first trunnion for movement axially thereof, a metal clutch plate resiliently mounted between said clutch disc and first gear, and an adjusting screw extending through said housing and bearing upon said clutch disc for controlled rotation to adjust the clutch pressure.

8. The system of claim 5 further defined by said bearing blocks mounting antifriction bearings adjustable to zero clearance carrying said axial trunnions for preventing radial and axial motion of the ink transfer cylinder relative to said bearing blocks.

* * * * *